

Greg E. Eddy

Geology of the Ohio River

Greg Eddy: I hope I don't forget it. My name is Greg Eddy.

Michael Nobel Kline: Are you a native of this area?

GE: I was born and raised in Wheeling. I grew up in Elm Grove and went to Triadelphia High School. I now went to--I went to West Virginia University, and I have a Ph.D. in geology. I taught at West Liberty State College. I've taught at Waynesburg College. And at the present time I'm teaching math part time at the Community College.

MNK: Why geology?

(010)

GE: Why, why did I get interested in geology? Probably fossils. I just--I was fascinated by the, finding a shell of an animal that hadn't seen the light of day for three or four hundred million years. I was just--And especially finding marine fossils, you know, sea creatures, in this area. To think that this area at one time had been an ocean was a fascinating thing to me. And it appealed to my sense of change. I like to see change. And it's just, it--See how it occurs. And in studying geology I found that this area had not only been an ocean, it had one time been a swamp, consequently the coal beds that came from the swamps. It had been a desert with a, a restricted bay in the, in this area, covered most of Ohio and West Virginia and western Pennsylvania. And the sea water that went into it dried up, evaporated, and left behind thick layers of salt. So this area has been almost every environment at one time or another.

(027)

Just alternating and switching back and forth. We have a tendency to think of it as the way it is, but when you go back and you look at the things that had been here, it's, I think it's rather fascinating. And most of those things, too, that I mentioned are why industry's here. The salt beds are the basis of most of the chemical industry that's up and down the Ohio River, and also along the Kanawha River. They, they pump brine, they pump hot water down into the ground and it melts, dissolves the salt. And they pump the brine back, and they use the salt for many different chemicals. And couple that with some of the natural gas, the hydrocarbons, that's really the basis of the chemical industry here.

MNK: How would you describe this valley to someone who--

(039)

GE: The valley--The Ohio River is one of the larger rivers in the country. I don't know exactly how wide it is; it varies, naturally, because of the dams now. A tenth of a mile across, something like that; maybe a quarter in some places. The valley itself is rather steep walled. The bottom of the valley is, the flat, the flood plane. The valley itself in width is only about twice of the size, width, of the river itself. The river

meanders back and forth in its valley as it widens it and deepens it. People don't, will ask the question, "Gee how'd this valley get here." And they're looking at this river. I mean the river made the valley. Well, the fact that the river is meandering back and forth in the valley, you have the flood plane in pieces, a little patch here and a little patch on the other side. But they alternate. And since we, we built towns on the flood planes along the Ohio River here, at least from East Liverpool down to Parkersburg, you very rarely found a town across from a town. They alternate with each

(054)

other. You have Wheeling here. Now Bridgeport is directly across from us, but Bridgeport's not built on the flood plane. Bridgeport's built up the creek valley that's over there. As you go north ... Wheeling, and on the opposite side is Martins Ferry, but it's above Wheeling. And you go up a little bit more and on the West Virginia side is Warwood. And if you ever drive between Wheeling and Warwood you find there's no space to build anything there, it's--The river is right over against the base of the hill. But on the opposite side is Martins Ferry, it's on the flood plane. And you go north, there's Warwood. Then Warwood, north of Warwood the river's against the, the hillside on the West Virginia side, but that leaves space on the other side, which is Rayland, I believe, and Tilton, Yorkville. I get the towns mixed up up there. And as you go up on the West Virginia side next is Wellsburg. Across from Wellsburg is nothing on the Ohio side. Then you go above Wellsburg, on the Ohio side you

(066)

have Mingo and nothing on the West Virginia side. But then if you go up just a little ways then there's Follansbee. And, and then Steubenville on the other side. And then Weirton on, on the West Virginia side. And then they just alternate. But they're not across from each other. Weirton also is a little special because Weirton, the bulk of the town, is built in a valley. At least that's where the steel mill and most of the shopping area is, used to be. Now it's moved up on top of the hill in the mall. But Weirton is built in a strewn valley where the Ohio River used to go. And if you look at it on a topographic map, you'll see that that was a nice, big valley. And the river went through there. For some reason it's been changed into another location where it is now.

MNK: Could you talk about going south of Wheeling? What happens?

(076)

GE: Well, it's pretty much the same thing. Bellaire is--Going south of Wheeling you'll find that Bellaire is across from a place in West Virginia where there's very little flood plane. And I, I'd have to look at the map to be absolutely sure the, the location of some of these, but the same thing is true. You have a town on one side and nothing on the other. They just alternate like that. The other thing that's, this area's famous for, of course, is oil and gas. The oil and gas industry started, they say, in western Pennsylvania, but it really had a big heyday in northern West Virginia. We all know about Sistersville. At one time Sistersville was the center of the petroleum industry in the world. There were more millionaires in Sistersville per capita than anyplace else they say, at that time, with all these farmers that owned vast acreage, you know, and making a little bit of money from the oil and gas and went to town and built a mansion. And you can still go there and see some of them. They're really very nice. But not only there but even up here in the

(090)

Northern Panhandle and just close to us in western Pennsylvania. A lot of oil, oil and gas wells. As I said before, the gas is part of the basis of the chemical industry. The coal industry is, of course--Everyone knows about that. And that's still the basis of a lot, a lot of the industry here.

Carrie Nobel Kline: Oil industry?

(095)

GE: Coal. Coal mining. Geologically that's, those are the major products. But another one that people don't think about often is the sand and gravel in the river is very valuable. All the concrete in this part of the world comes from sand and gravel and out of the rivers. Here in the Ohio Valley we're fortunate because the Ohio River has very good sand and gravel in it. Of course it--most of that gravel is not local; it's Canada. When the glaciers came down out of Canada, they carried an awful lot of stuff from Canada, dumped it just outside of West Virginia. The glaciers never touched West Virginia, but they did in Ohio as close as Cambridge, I believe. Somewhere in that area going in that direction, but just north of West, West and the Northern Panhandle. And all the streams that are coming down from there, like the Allegheny also from Pennsylvania, are carrying this glacial material and grinding it up and making it nice and smooth and round into gravel and sand. That's the sand

(112)

and gravel that makes up the vast majority of what we see in the river. One of the reasons it's most of it is because it's more resistant than the rocks that are here locally. They wear away into almost nothing very quickly compared to the rocks that came out of Canada. Because they are igneous and metamorphic. They're just very, very hard. Makes excellent gravel. So if you want a sample of Canada, all you have to do is just go to a gravel pile around here and grab a handful of it, and you'll get a good selection of Ontario. Well, we should go back and, and talk about the history of the river itself. You see, the river is one of the newest rivers in North America. It's a very young river. Actually, the Missouri River's also very young. They were formed by glaciers. At one time prior to the glaciers, which was on, the first one was a million years ago, the Ohio River did not exist. There was a stream in the location of where the Ohio River is. It had its headwater somewhere around New Martinsville, and it flowed north. And it went up, and it joined--The Allegheny and the Monongahela haven't changed very much. They came together and where, where Pittsburgh is and flowed over and then met this north flowing stream

(129)

in roughly where the Ohio River is now. They joined just at the tip of West, West Virginia and flowed north. And they flowed north up to where Lake Erie is and out the St. Lawrence Sea Way on a river out in that direction. Well when the glaciers came down they blocked all that, dammed it up. And a very large lake formed in the Monongahela River Valley and in what was, what is now the Ohio Valley. The lake overflowed. It had its ... and overflowed. And all the water from it went into what is now Middle Island Creek, which I've heard is the longest creek in the world. I have no idea what that means though. I never understood the difference between the words stream, creek, run, brook, river. It's just ... I think it's mostly just man putting his name on it. We have a tendency to think that, well, what rivers are navigable.

You can get a boat up

(143)

a river, but you can't necessarily up a creek. Well my question is what kind of a boat! But anyway, Middle Island Creek then at that time carried all the water we now see in the Ohio, plus what it has in it now, plus the extra drainage of all that water melting from the glaciers. So that must have been a very impressive stream. And if you go to Middle Island Creek today you'll see that there's this big valley and a relatively small stream in it. Geologists call it an overfit stream; it has a bigger valley than it really needs, or it made it. It didn't make that valley. Middle Island Creek made it years ago when it had all that other water in it. So it, it looks different to us than other streams in this part of the country. Well the glaciers melted away, and the drainage went back to just about the way it was. When the glaciers came the second time, or the third, we're not sure exactly, at least I'm not sure exactly, the Ohio River was formed in roughly its present position. Apparently the overflow not only

(157)

went into Middle Island Creek, but there was some kind of an overflow of that ancient Ohio River. And in its, it's had in its headwaters near New Martinsville. And it cut down enough that when the glaciers melted the second or third time, the Ohio River maintained that drainage. So the Ohio River, really from New Martinsville north to East Liverpool, Newell, someplace there--

CNK: ...

(163)

GE: Newell. That's the, clear in the northern tip of the State. It's reversed its direction in, in a way. In a way of speaking, it did. From there south, by the way, from New Martinsville south, there have been little streams in places where the Ohio River is now, but they joined together and went out over, you know, the Kanawha and so on, went out across Ohio north of where the Ohio River is now. They went across, I don't know, forty or fifty miles north, say, of where it is now, across Ohio, Indiana, Illinois, and then joined ancestral Mississippi. That was blocked. The valleys were completely filled up with this glacial gravel, and the river formed where it is now. And this is--A similar thing happened with the Missouri River. It almost is the boundary of glaciation. So the Ohio River is not a new river at all. It's a rather--I mean not an old river. It's a rather recent, new river, very young.

MNK: Dating from the, from the last glacier?

(181)

GE: Yes, from this last period of glaciation.

MNK: And we're talking how many years ago?

GE: Well the ice has been here and gone four times within the last million years. It was here a fewer number of years than it was gone. So out of that million years we had ice in the four different sheets probably a total of three or 400,000 years. And the six to 700,000 years in between was ice free. And we are now just going into a ice free period. The glaciers were here not long ago. They figure the last bit of ice in central Canada probably melted around 20,000 years ago. Well, 20,000 years seems like an awful lot to us, but 20,000 years, when you're talking about a million, you see, that's not that much. So we're just

coming out of a, the fourth sheet. And people always ask, "Are we going to have it again?" Well, it, it came and went four times; there's no reason to believe it won't come again. And when, whether
(195)

you have glaciers or not depends mostly on geography, the relationship of the seas and the land masses and how they interfere with the normal circulation of the ocean water and also the normal circulation of the atmosphere giving you places that are cold enough that, and wet enough, that you get ice accumulating.

MNK: I don't want to get too far over into archeology here, but how old is the story of the man in, in this valley, and what do you suppose early people encountered here?

(203)

GE: Well, man apparently came to North America during the last ice sheet. So they came here twenty or thirty, 20,000 years ago or something like that. Came across to Alaska. They could come across at that time, because it was--the oceans were about 600 feet lower than they are today. All that water was tied up in the ice in the glaciers. And so they came across to Alaska. And there's that big area in central Alaska there that did not have glaciers. So they think that they came over, and then as the ice melted they were trapped, because the sea level went up. But as the ice disappeared then they could also then move south. And apparently it wasn't very long, just hundreds or maybe a thousand years or two, then man had pretty well spread across this whole, whole continent. And so they came into this area probably, we're not, we're not talking very long ago, ten, 15,000 years ago, something like that.

(219)

You'll have to talk to the people at Medicrof though. They're the experts on the archeology when man came here. All I know is that when the white man came here there were Indians here. And as a matter of fact, the Indians had, had great civilizations before the white man came to this part of the world. And for some reason some of them have started to deteriorate and die out before the white man really had contact with them. I've read that it's white man diseases that wiped out a lot of the Indians prior to them ever having seen a white man. You know, the white man came to the continent, and the diseases spread out ahead of him. All I know is here in Wheeling the old Zane stories, you know. Betty Zane and the, and the Fort Henry and all that sort of thing. The--I've always wanted to know where the fort was. I, I can guess because of the geography. But Wheeling is unique. And why did Wheeling grow here

(234)

before some of these other places. And that's because there's a plateau, high, flat area. High, so it wasn't down on the river and getting flooded, and flat, so that man could build on it. We build on all the flat places first; it's logical. And that's the area around, from 11th Street down back up to 8th or 7th, somewhere in there. There's a fairly large flat area there. I've heard that the fort was over near, it's in front of the Methodist Building, between there, YWCA, the Security Bank, which used to be Security Bank, and somewhere there. But I thought it was more up where Stones was. I'm hoping you can help me with that.

???: I'm not sure.

(245)

GE: But it had to be in that general area. And it was there for geology reasons. Because that was a nice, flat plateau above water level. And big enough to build a, a fort, have a little farming going on. So even where Wheeling is today, it started anyway, is related to the geology.

CNK: I haven't heard too many other cities that have a large residential island. Can you talk a little bit about that?

(254)

GE: Gee, did I read that in one of your articles, that Wheeling Island is the, or was that in *Goldenseal*? *Goldenseal*. Wheeling Island is the, one of the largest inhabited islands in North America. ... Manhattan and--I think that's about it. I think it's the second largest one.

CNK: In terms of population density or size of the island?

(261)

GE: I thought it was population. Why is it there. I think what it is is a, it's there because of the stream in Ohio that comes in from, you know, through Bridgeport, carrying all kinds of material into the river. And then the river just reworks it a little bit, reshapes it. Also, it's a fairly wide area right there. The river's a little bit wider. And so this is--The Wheeling Island is just reworked sand and gravel from the stream that's running in over there. Or it's creating the current that allows the stuff to accumulate. It's hard for me to tell right now because I never really looked at it in that, that way. And then, of course, man changes things. There used to be a couple of nice islands off of Warwood. I think they were called the Sister Islands. And they're just about gone. When they built the dam, the new dam, it changed the current. It changed direction and ... them away. And now you see a lot of erosion in some

(279)

of these islands by, by the large riverboat traffic, the riverboats. I, I do a lot of bird studies, and I did a bird study on Fish Creek Island a couple years ago. And one side of Fish Creek Island is exactly the same way as it was two, three, four years ago. I mean there's absolutely no change at all. But on the other side I can see where there's eight to ten feet of erosion in the last year. That's one of the islands that is supposed to become part of the Ohio River Islands National Wildlife Refuge. Wheeling Island's probably the only major island that will not be because, you know, it's completely covered with people now, or almost completely covered.

CNK: How big a mass is Wheeling Island? Do you have any sense of that?

(291)

GE: No, no, I don't. The only way I'd do that is measure it anyway on a map, width and length. I doesn't seem to be changing a whole lot, but then man wouldn't allow it. We have a tendency to try to keep things the way they were when we first saw them. I think a classic example to me is when they turned off Niagara Falls to clean it up! You didn't know they did that? Yes. The American government turned off the American Falls and Niagara Falls a few years ago, just dammed it off and blocked it off. And then they got in there and they cleaned all the big boulders off that, that had fallen down because it was rapidly becoming just rapids and no longer a pretty waterfall. And they--

CNK: ...

(303)

GE: They pinned, they pinned the rock together and everything to hold it so it would stay. The Canadian falls are, of course, the Horseshoe Falls. And they're eroding back very rapidly, about four feet a year. Geologically that is very fast. I've always told my students eventually it will wear back to Lake Erie and drain Lake Erie. So it can't be all bad! That's what I used to tell them when Lake Erie was really polluted, but it's not so bad now.

CNK: Well, you mentioned the birds. What sense do you have of the flora and fauna of Wheeling and the valley?

(314)

GE: Well, just take the river. The river has improved tremendously. I know when my parents were young there was bathing beaches on the Ohio River, on, on the Island, on the north end of the Island and I think underneath the Suspension, or maybe the Iron Bridge, someplace on the Wheeling side. But they had these bathing beaches. The water was clean enough that they did that. By the time I was a kid nobody would go near the water. And it was just an open sewer for cities and for industry. But now we've cleaned that up, and I fish in the river. And you see a lot of people fishing and catching a variety of fish in the river. It's cleaned up tremendously. Really a great improvement. I know one thing that really shocked me, I grew up in Elm Grove and when I was a child Wheeling Creek was nothing, it was just dead because of the mine drainage and also the open sewers. It smelled, and it was

(331)

orange. And we were lucky to see anything but maybe a Clorox bottle floating by or something. Last year I was having my car worked on at a place in Elm Grove, and the man said, "Well,"--I had some time to kill, and he said, "Well, why don't you go fishing down here." I walked out behind the place, and in about forty minutes I caught two trout and a bass, all big enough to keep. I couldn't believe it! This was the, this was the sewer when I was a kid, and now it's clean enough that it has trout and, and quite a few bass in it.

Things have improved a lot that way.

MNK: Do you remember when Wheeling was a sooty city?

GE: When it was a big city?

MNK: Sooty city.

(342)

GE: Oh, sooty city. Oh, certainly. When I was a child the snow was pretty for a few hours, then that was all! The next day it was black! Oh, I remember that very well. You know, we were, we were one of those cities that didn't trust any air we couldn't see! We used to say that about Pittsburgh and places like that, and Wheeling.

MNK: Didn't want to breath anything they can't see.

(351)

GE: No, didn't trust any air you couldn't see! ...

MNK: Start that again.

(354)

GE: Well, my Uncle Paul Eddy was in the police force. And one day they announced that they had openings for two motorcycle policemen and wanted to know if anybody had experience on motorcycles to, then they could volunteer. Well, he put his hand up. And afterwards one of the other people came over to him, Reece Blair who was a motorcycle policeman, and said, "Paul, you don't know how to ride a motorcycle, do you?" And he says, "No, I've never been on one." So Reece took him out and taught him how to ride the motorcycle. So then he could become the, a motorcycle policeman himself. And my Uncle Paul and Reece Blair looked exactly alike. These two men were almost twins. They had the same mustache and everything, and everybody got them confused. He has photographs of the two of them. They had photographs of the two of them in the, in the paper, you know, which one's which! Reece

(369)

Blair, who died a few years ago, was the father of Bill Blair that's now running for governor.

MNK: So--

(372)

GE: He's on the board here at the school, I think.

MNK: Your--So your father could sometimes be in two places at--

GE: No, my uncle.

MNK: Or your uncle could sometimes be in two places at--

(374)

GE: Yes, yes. ... very popular, and he's very well thought of here in Wheeling. He was the policeman that directed traffic at 11th and Market. And everybody saw him. And then for a long time he was in charge of the school boy patrol. And he went from school to school and, and now there's just a lot of people in the city that know him because of that. An interesting fellow.

CNK: Well, we'll have to try to interview him.